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ABSTRACT

In order to enhance the understanding of visual literacy, one of its constituents, visual learning (VL), is examined in terms of underlying assumptions, hypothesized behaviors, and implications of both assumptions and behaviors. Assumptions are: (1) VL encompasses all changes in behavior arising from the individual's responses to visual stimulation, (2) VL is dependent on the maturation level and extent of prior learning experiences, (3) VL develops in an invariant sequence of stages, and (4) VL is most likely to result from active participation by the learner.
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VISUAL LEARNING

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VISUAL LEARNING

The use of the term "visual literacy" has substantially increased since the First International Visual Literacy Conference was held in 1969; however, the construct lacks clear definition. The nature and constituents of this construct need to be well articulated so that practical applications and research have a focus.

In order to provide a beginning to the understanding of this construct one of the constituents of visual literacy, visual learning, is examined. Assumptions underlying it, hypothesized behaviors implied by it, and implications of these assumptions and behaviors are outlined.

Assumptions

1. Visual learning encompasses all changes in behavior arising from the individual's responses to naturally occurring or specifically designed sources of visual stimulation.

Rationale: The total education of any individual does not take place in formalized institutions. Much learning takes place as a result of the individual's own efforts, either before entering the institution or during attendance at the institution. This is particularly important for the area of visual learning because the visual sense is involved in a very significant way right from the time of the child's birth. The visual abilities acquired by the individual on his own should not be ignored in considering visual learning. There are some formalized experiences provided for the learner through a variety of academic courses offered in

the schools and colleges. Therefore, the individual's level of visual learning is the result of the contribution of both sources of visual inputs.

2. Visual learning is dependent upon the maturation level as well as the nature and extent of prior learning experiences.

Rationale: It is a well known phenomenon in the study of humans that there are recognizable differences which make each individual unique. The composition of a group of individuals forming a specific class in the educational institutions as they currently exist would obviously make each class unique in several respects, e.g., family background, socioeconomic status, and intellectual capability. For the instruction and the assessment of the level of visual learning, the developmental maturity along with the kinds and extent of previous learning experiences of each individual becomes very important.

3. Visual learning develops in an invariant sequence of stages whereby each subsequent stage subsumes the abilities acquired in all earlier stages.

Rationale: Visual learning may be contingent upon and is not isolated from other cognitive processes. There is evidence from the research of developmental psychologists, particularly that of Piaget and his associates, that cognitive ability develops in a progression of stages for all humans. The early stages of cognitive development are crucial for planning any instruction because the influence of the cognitive repertoire of the learner has been shown to determine significantly the effect of the planned instruction. The consideration of the prerequisite learning skills

may not take into account the cognitive readiness of the learners. Therefore, it is reasonable to suggest that visual learning should

Insert Figure 1 about here

take place after considering both cognitive readiness and the relevant prerequisite abilities. Gibson (1969) has provided a schematic representation for perceptual cognitive achievement that depend upon prior development and this is provided in Figure 1.

4. Visual learning is most likely to result from a process of active participation by the learner.

Rationale: Active participation means the conscious processing of visual inputs. It is well known that any time an individual opens his eyes the sensorium is bombarded with a multitude of visual inputs. This does not mean that all that is seen is necessarily processed and related to what the learner has already learned. Unless the visual inputs are consciously processed and related to the existing knowledge and cognitive structure of the learner, visual learning will probably not occur. Ausubel (1965) proposes an analogous position in relation to the meaningful learning of verbal materials and cognitive development in general.

Behaviors in Visual Learning

The hypothesized behaviors and sequence below represent areas of visual learning rather than specific unitary behaviors.

Depending upon the developmental level of the child and his prerequisite abilities, sub-areas from each identified area may result in

providing curricular directions. For a specific curricular unit the sub-areas identified may require a thorough consideration in order to determine the sequence of presentation for effective learning. The identified areas should not be considered to be a complete or exhaustive list. These merely indicate some potential and obvious areas that could be identified under the constraints of time and library resources.

A number of theoretical positions have been proposed that may be helpful in identifying additional behaviors of interest (see Gibson (1969) for a summary of such theoretical formulations). Table 1 provides a

Insert Table 1 about here

nut shell view of various theories.

Hierarchy of Behaviors

I. Recognition of:

- a. movement
- b. objects and organisms
- c. color
- d. shape
- e. size
- f. distance
- g. spatial orientation
- h. picture/visuals

II. Matching of:

- a. movement
- b. objects and organisms
- c. color

- d. shape
- e. size
- f. distance
- g. spatial orientation
- h. pictures/visuals

III. Discrimination of:

- a. movement
- b. objects and organisms
- c. color
- d. shape
- e. size
- f. distance
- g. spatial orientation
- h. pictures/visuals

IV. Classification of visuals

V. Ordering of visuals

VI. Arranging visuals for a specific purpose

VII. Selection of visuals for a specific purpose

Implications

1. Although an attempt has been made to identify general and broad categories of behavior, the list may not be complete. It is possible that previous research may have dealt with many of the relevant categories, therefore, a systematic search of the literature should be made in an effort to: a) determine other relevant categories; b) gather research evidence to determine critical periods for systematic instruction; and,

c) determine the emergence of visual abilities as a result of planned intervention.

2. On the basis of the behaviors hypothesized in this report, assessment measures (formative, summative, and diagnostic) can be developed, keeping clearly in mind the purpose of assessment, the target population, and the content of visual learning.

3. It is essential to determine the order in which the hypothesized behaviors develop in learners. Sound longitudinal research could provide convincing evidence.

4. For the categories of behaviors hypothesized, appropriate instructional materials would need to be developed, after considering the research results pertaining to specific behaviors and the learners involved.

5. Instructional strategies for the development of the specific visual skills for various target populations need to be explored for their effectiveness.

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Table 1
A Schema of Theories of Perceptual Development and Learning¹

Process Involved			
Psychological			
Orientation	Discrimination	Representation	Inference
Differentiation Theory			
1. Stimulus	(Werner, 1948)	-	-
Additive Mediation		Motor Copy	
Theories		Theories	
2. Response	(Taylor, 1962)	(Ananiev, 1957)	-
	()	()	
	(Postman, 1955)	(Leontiev, 1957)	
	()		
	(Pavlov, 1927)		
		Schema Theories	Problem-solving
3. Cognitive	-	(Bartlett, 1932;)	or
		()	
		(Vernon, 1954,)	Unconscious
		()	
		(1955)	Inference
			(Bruner, 1957)

¹Material in this table is adapted from Gibson (1969).

Total Cognitive Process

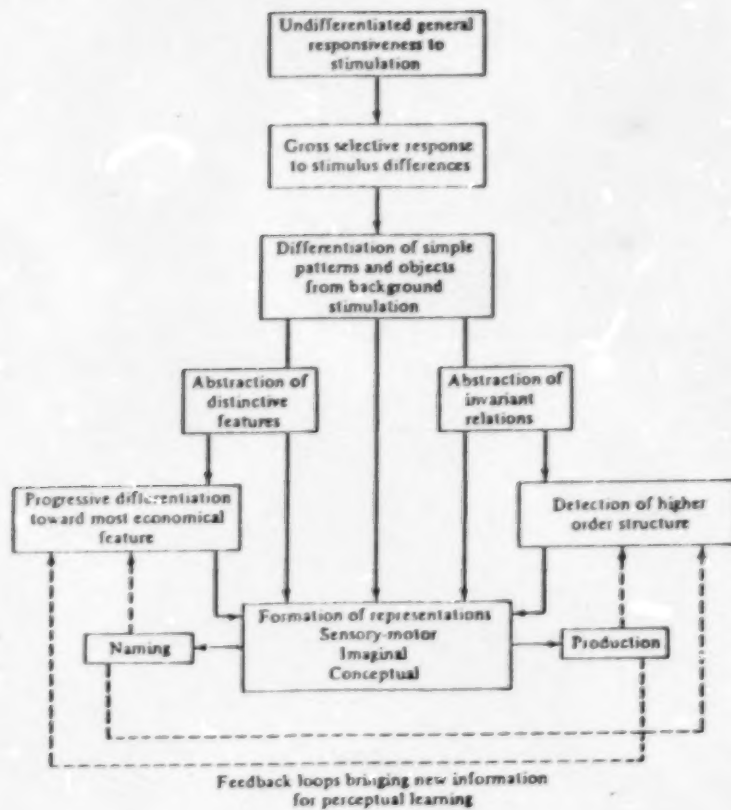


FIGURE 1. Developmental interrelations of cognitive processes.

Taken from Gibson (1969, p. 161)